

# CARGILLE LABORATORIES

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BK-7 MATCHING LIQUID

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n (589.3nm) 25°C = 1.5167

## TYPICAL CHARACTERISTICS

<u>COMPOSITION</u> .....	Chlorinated Aliphatic Hydrocarbons
<u>APPEARANCE</u> .....	Colorless to slightly yellow liquid
<u>COLOR STABILITY IN DIRECT SUN</u> .....	In direct sunlight will slightly darken in 1 month
<u>INDEX CHANGE RATE BY EVAPORATION</u> .....	Very Low: 0.00000 expected; exposed surface area to volume ratio of 0.2 cm <sup>2</sup> /cc @ 25°C for 32 days
<u>ODOR</u> .....	Slight, characteristic
<u>FREEZING POINT</u> °C .....	< -9
<u>BOILING POINT</u> °C @ 760mm Hg .....	> Decomposes at 160°C
<u>FLASH POINT</u> °C C.O.C. ....	> Decomposes at 160°C
<u>DENSITY</u> g/cc @ 25°C .....	1.322
<u>COEF. OF THERM. EXP.</u> cc/cc/°C .....	0.0007
<u>VISCOSITY</u> @ 25°C .....	1450cSt <span style="float: right;">1916cP</span>

SOLUBLE: Acetone, Carbon Tetrachloride, Diethyl Ether, Heptane, Methylene Chloride, Naphtha, Toluene, Turpentine, Xylene  
PARTLY SOLUBLE: Ethanol  
INSOLUBLE: Water

COMPATIBLE: 1-month immersion at 25°C: Acrylic, Cellulose Acetate, Epoxy, Mylar, Nylon, Polycarbonate, Polyester, Polyethylene, Polypropylene, Polyurethane, Polyvinyl Chloride, Phenolic, Teflon, Neoprene, Fluorosilicone (Silastic 730 RTV), Silicone (Sylgard 184, 3140 RTV) Rubbers, Tygon F-4040-A, Tygothane, Aluminum, Copper, Brass, Steel; (tests done on one example of each).

INCOMPATIBLE: Latex Rubber, Polystyrene, Tygon S-50-HL, R-3603, B-44-3

CAUCHY EQUATION: Refractive index as a function of wavelength at 25.0°C

W = wavelength (nm)

$$n(W) = 1.502639 + (4.7089420E+03) / W^2 + (6.3670450E+07) / W^4$$

SOURCE OR SPECTRAL LINE	WAVELENGTH (nm)	REFRACTIVE INDEX 25°C	% TRANSMITTANCE 25°C		
			0.1 mm	1 mm	1 cm
near UV cut off	350	1.545	96	64	1
i ( Hg )	365	1.542	99	94	52
h ( Hg )	404.7	1.5338	100	98	85
F' ( Cd )	480	1.5243	100	100	97
F ( H )	486.1	1.5237	100	100	98
e ( Hg )	546.1	1.5191	100	100	100
D (Na D1, D2 mean)	589.3	1.5167	100	100	100
HeNe laser	632.8	1.5148	100	100	100
C' ( Cd )	643.9	1.5144	100	100	100
C ( H )	656.3	1.5139	100	100	100
Ruby Laser	694.3	1.5127	100	100	100
GaAs laser	840	1.5094	100	100	100
Nd: YAG laser	1064.8	1.507	100	100	98
Diode	1300	1.505	100	99	95
Diode	1550	1.505	100	99	90
n <sub>F</sub> - n <sub>C</sub>	=	0.0099			
Abbe v <sub>D</sub> : (n <sub>D</sub> - 1)/(n <sub>F</sub> - n <sub>C</sub> )	=	52.8			
Temp. coef: dn <sub>D</sub> /dt 15 - 35°C	=	-0.000384			

The above values are typical for this liquid and are calculated from values typical of its components